L 140

L 141 Fast, L 142 Medium, L 143 Slow Hardeners

Technical Data Sheet

EPOXY LAMINATING SYSTEM

For Laminating, Excellent Properties

DESCRIPTION

The new and improved L 140 systems are convenient, easy-to-use, 100% solids laminating systems developed for building, repairing or restoring any type of marine vessels and for many other applications and markets. The versatility of the L 140 epoxy systems make them ideal for use in standard wet lay-up and vacuum bagging processing with a wide range of reinforcements. These systems can also be mixed with a variety of fillers for fairing, filleting or bonding applications. L 140 epoxy systems consist of one base resin and a selection of three separate hardeners to suit your application needs. These systems are all mixed at convenient 3:1 volumetric mix ratio and can be metered through our calibrated push pumps or various types of dispensing equipment when scales are not used. In addition to the high strength and durability of the L 140 epoxy systems, the low viscosity allows for better wet-out resulting in lighter, stronger, void-free parts without experiencing run out on vertical surfaces. The unique chemistry of the L 140 systems provide maximum physical properties, reduces curing exotherm and minimizes blush, making these systems more trouble free than ever. Two mixed color systems are available. Clear and Translucent green (uses a yellow tinted resin and a blue tinted hardener).

APPLICATIONS

- *High performance marine boats, parts, and tooling applications*
- *High performance tools or parts for the general industrial, transportation, aerospace industries*
- *Suitable for wet layup and vacuum-bagging*

PROPERTIES

- *Low viscosity for excellent wet-out*
- *Three hardener choices (fast/medium/slow)*
- *Above or below waterline applications*
- *Excellent ultimate properties (post-cure optional)*
- *Epoxy (non-styrene)*
- *Excellent bond to all fabrics*
- *Suitable for glass, carbon, aramid fibers*
- *Good 24 hour cured surface sandability*

Physical Properties

	Test Method	L 140 Resin	L 141 Fast Hardener	L 142 Medium Hardener	L 143 Slow Hardener
Composition		Epoxy	Amine	Amine	Amine
Mix Ratio, by weight Mix Ratio, by volume		100 >>> 100 >>>	27 33	27 33	27 33
Appearance		Opaque Liquid	Clear Liquid	Clear Liquid	Clear Liquid
Color (two choices)		Opaque Clear & Clear Yellow	Clear & Clear Blue	Clear & Clear Blue	Clear
Viscosity @ 77°F (25°C) Cps.and mPa.s Brookfield RVT	ASTM D2196	6,000 – 8,000	16-24	12-20	10-18
Viscosity, mixed @ 77°F (25°C) Cps.and mPa.s Brookfield RVT	ASTM D2196		1,000 – 1,400	800 – 1,200	800 – 1,200
Density @ 77°F (25°C) Average - lbs./gal. (g/cc)	ASTM D 1480	9.6 (1.15)	7.85 (.94)	7.85 (.94)	7.85 (.94)
Gel time, 150 g at 77°F (25°C) Minutes			20-30	65-95	110-160

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Neat Cured Properties Tested at 74°F (23°C) *R.T. and **Heat Cured					
	T est Method	**Unit(s)**	**Fast Hardener**	**Medium Hardener**	**Slow Hardener**
Glass Transition Temperature - TMA (Ave.) * R.T Cure **180°F Post-Cure	ASTM E1545	°F (°C)	 136 (58) 203 (95)	 136 (58) 203 (95)	 136 (58) 194 (90)
Hardness * R.T Cure **180°F Post-Cure	ASTM D2240	Shore D	84 - 88 84 - 88	84 - 88 84 - 88	86 - 90 86 - 90
Flexural Strength * R.T. Cure **180°F Post-Cure	ASTM D790	psi (MPa)	10,000 (69) 14,500 (100)	11,900 (82) 18,500 (127)	11,300 (78) 16,400 (113)
Flexural Modulus * R.T. Cure **180°F Post-Cure	ASTM D790	psi (MPa)	564,000 (3,892) 468,000 (3,229)	534,000 (3,685) 472,000 (3,257)	504,000 (3,478) 442,000 (3,050)
Tensile Strength * R.T. Cure **180°F Post-Cure	ASTM D638	psi (MPa)	6,000 (41) 11,600 (80)	7,000 (48) 11,400 (78)	6,600 (46) 11,300 (78)
Tensile Modulus * R.T. Cure **180°F Post-Cure	ASTM D638	psi (MPa)	310,000 (2,139) 234,000 (1,615)	279,000 (1,925) 220,000 (1,518)	260,000 (1,794) 251,000 (1,732)
Tensile Elongation * R.T. Cure **180°F Post-Cure	ASTM D638	%	2.3 7.3	3.0 8.1	3.2 7.0
Moisture Absorption * R.T. Cure (24 hr. Soak)	ASTM D570	%	0.1	0.2	0.2
Compressive Strength * R.T. Cure **180°F Post-Cure	ASTM D695	psi (MPa)	14,700 (101) 14,500 (100)	13,300 (92) 13,200 (91)	12,800 (89) 13,700 (95)
Compressive Modulus * R.T. Cure **180°F Post-Cure	ASTM D695	psi (MPa)	366,000 (2,525) 324,000 (2,236)	356,000 (2,456) 312,000 (2,153)	334,000 (2,305) 315,000 (2,174)
Impact Strength * R.T. Cure **180°F Post-Cure	ASTM D256	psi (MPa)	0.7 0.6	0.9 0.9	1.0 1.0

* 7 day R.T. cure (74 – 78°F)
**8 hr. / 180°F cure

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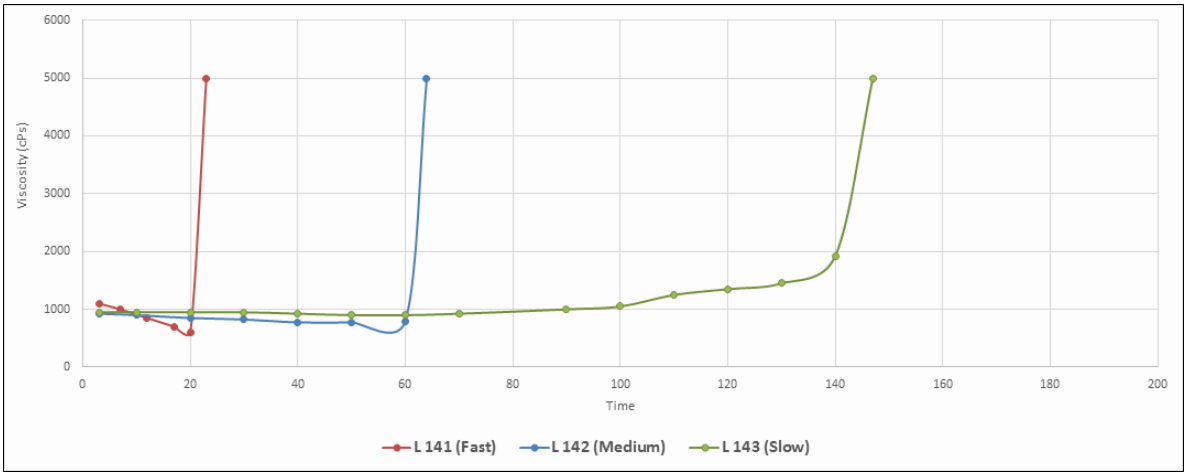

Viscosity / Gel Profile - L 140 resin with L 141 fast, L 142 medium, L 143 slow hardeners

PROCESSING

After mixing well according to the indicated ratio impregnate the reinforcement according to the selected process. Accelerated cure schedule: Normal cure schedule: 7 days @ R.T.. Options - Allow to set 24 hours at room temperature, then post cure up to 180°F if needed. The laminate can be immediately placed into up to 140°F (60°C) oven for 4 hours if fast de-molding and and use is required after layup, however, 24 hour R.T. minimum cure is preffered before post-curing if possible. NOTE : L 140 resin may crystallize in storage. Vent top and heat material to 120 – 140°F maximum overnight to de-crystallize the resin. Allow to cool before use.

STORAGE CONDITIONS

This resin product has a shelf life of 12 months and hardeners 24 months as indicated by the expiration date on the container when stored in original unopened containers between 59 – 77°F (15 – 25°C). Any opened can must be tightly closed.

HANDLING PRECAUTIONS

Normal health and safety precautions should be observed when handling these products :

- *Ensure good ventilation*
- *Wear gloves, and safety glasses*

For additional information, please consult the Safety Data Sheet (SDS).

DISCLAIMER

The information contained in this technical data sheet results from research and tests conducted in our laboratories under precise conditions. Seller cannot anticipate all conditions under which seller's products, or the products of other manufacturers in combination with seller's products, may be used. It is the responsibility of the user to determine the suitability of the SikaAxson's products, under their own conditions, before commencing with the proposed application. In no event shall SikaAxson US be liable for any direct, indirect, punitive, incidental, special, and/or consequential damages, to property or life, whatsoever arising out of or connected with the use or misuse of our products.

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